UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,819	04/15/2004	Ronald J. Daley	67010-087;H2699-GC	6680

26096 7590 09/06/2007

CARLSON, GASKEY & OLDS, P.C.
400 WEST MAPLE ROAD
SUITE 350
BIRMINGHAM, MI 48009

EXAMINER
SEFCHECK, GREGORY B

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
09/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/824,819	DALEY ET AL.	
	Examiner	Art Unit	
	Gregory B. Sefcheck	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because the main bus in Fig. 3 is identified by element number 102 instead of 12, as on pg. 1 of the Specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because a disk drive file location is included at the bottom of the page. This should be deleted. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities:

- On Pg. 3, paragraph 14: "virtually" should be changed to - - virtual -
- The Detailed Description section (pgs. 3-7) of the Specification refers to both element 106 and 112 of Fig. 2 as "remote terminal". References to element 112 should be amended (the Examiner recommends - - remote terminal interface - - or - - remote terminal interface control logic - -) to differentiate from the remote terminals 106. The disclosure clearly focuses on the integration of remote terminal interface control logic 112/30 and bus repeater 110/18 (for example, see pg. 2, paragraphs 6-7). As such, for the purposes of examination, the Examiner will interpret the "remote terminal" of claims 1 and 8, which state "a remote terminal in direct communication with the bus repeater", as the remote terminal interface control logic 112/30 shown in Fig. 2 and 3, rather than remote terminals 106/10.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4-6, 8, and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Lui et al. (US005337413A), hereafter Lui.

- Regarding Claims 1, 2, and 8,

Lui discloses an environment monitoring ystem for standard interface bus computer systems (Title).

Referring to Fig. 1, Lui discloses a communication system including a host adapter 3 (integrated interface) that forms a communication link between a main bus 2 connected to host 1 (central computer) and an extended bus 2 connected to remote devices 13 meets claim 8 - main data bus, extended data bus; claim 8 - a central computer in communication with the main data bus; claim 1 - integrated interface for a communication system that forms link between main data bus and extended data bus; claim 1,8 - a bus repeater having a first data interface to couple with a main bus and second data interface to couple with an extended bus; claim 2,8 - first data interface is a first transceiver and the second data interface is a second transceiver).

Lui shows that the adapter includes a bus repeater 4 and monitor logic 5 that is directly connected to the bus repeater by links 11,12 (claim 1,8 - a remote terminal in direct communication with the bus repeater).

- Regarding Claims 4-6 and 10-12,

Lui discloses a communication system and interface that meets all limitations of the parent claims.

Lui discloses control logic (Fig. 2) for controlling the operation of the bus repeater when switching between Bypass and Monitor modes, including the re-shaping of data and the direction of data through the adapter 3 (Col. 4, lines 39-42; Col. 7, lines 20-67; meets claim 5,11 - bus repeater comprises signal filtering and reconstruction control logic that reconstructs received data and controls a transmit/receive direction of data through the bus repeater). Lui also discloses information used in operating the bus repeater 4 and monitoring logic 5 can be specified through communication of a control program running on the host processor 1 (Fig. 1; Col. 5, lines 27-41; claim 4,10 - at least one of the bus repeater and the remote terminal is a programmable device; claim 6,12 - signal filtering and reconstruction control logic is in a reprogrammable device in the bus repeater).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-6, 8-12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (Fig. 3), hereafter APA, in view of Lui.

- Regarding Claims 1, 2, and 8,

APA discloses a communication system having a main data bus 12 and an extended data bus 14 (meets claim 8 - main data bus, extended data bus).

APA further discloses a central computer 38 connected to the main bus (claim 8 - a central computer in communication with the main data bus).

APA also shows electronic package 16 (interface) that forms a link between the main bus and extended bus (claim 1 - integrated interface for a communication system that forms link between main data bus and extended data bus).

APA shows that a bus repeater 18 is included in the electronic package, having transceiver 20 coupled to the main bus and transceiver 22 coupled to the extended bus (claim 1,8 - a bus repeater having a first data interface to couple with a main bus and second data interface to couple with an extended bus; claim

2,8 - first data interface is a first transceiver and the second data interface is a second transceiver).

APA discloses remote terminal interface control logic 30 also included in the electronic package. However, APA does not explicitly show the logic in direct communication with the bus repeater.

Lui discloses an environment monitoring ystem for standard interface bus computer systems (Title). Referring to Fig. 1, Lui discloses a host adapter 3 (integrated interface) that forms a communication link between a main bus 2 connected to host 1 and an extended bus 2 connected to remote devices 13. Lui shows that the adapter includes a bus repeater 4 and monitor logic 5 that is directly connected to the bus repeater by links 11,12 (claim 1,8 - a remote terminal in direct communication with the bus repeater).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system and interface of APA by directly connecting control logic to the bus repeater within an integrated interface between a main bus and an extended bus, as shown by Lui. This would enable communication from control logic associated with remote devices to the host/central computer without requiring an additional dedicated address port on the adapter (Lui, Col. 2, lines 35-40).

- Regarding Claims 3 and 9,

APA discloses a communication system and interface that meets all limitations of the parent claims.

APA does not explicitly disclose transceiver 20 or 22 including analog-to-digital conversion circuitry and digital-to-analog conversion circuitry.

However, APA discloses that remote terminal interface control logic 30 receives and responds to messages from the remote terminals 10 over the extended bus after converting the analog signals to a digital format (see Background section of the Specification, Pg. 2, paragraph 5; meets claim 3,9 - at least one of the first and second transceivers includes analog-to-digital conversion circuitry and digital-to-analog conversion circuitry).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement analog-to-digital and digital-to-analog circuitry in at least one of the transceivers in APA. One of ordinary skill would be motivated to perform this implementation because the remote terminal interface control logic 30 requires analog-digital conversion circuitry to process messages from the remote terminals 10 over the extended bus.

- Regarding Claims 4-6 and 10-12,

APA discloses a communication system and interface that meets all limitations of the parent claims.

APA does not explicitly disclose the bus repeater comprising programmable signal filter and reconstruction control logic for reconstructing received data and controlling the direction of data through the bus repeater.

Lui discloses control logic (Fig. 2) for controlling the operation of the bus repeater when switching between Bypass and Monitor modes, including the re-

shaping of data and the direction of data through the adapter 3 (Col. 4, lines 39-42; Col. 7, lines 20-67; meets claim 5,11 - bus repeater comprises signal filtering and reconstruction control logic that reconstructs received data and controls a transmit/receive direction of data through the bus repeater). Lui also discloses information used in operating the bus repeater 4 and monitoring logic 5 can be specified through communication of a control program running on the host processor 1 (Fig. 1; Col. 5, lines 27-41; claim 4,10 - at least one of the bus repeater and the remote terminal is a programmable device; claim 6,12 - signal filtering and reconstruction control logic is in a reprogrammable device in the bus repeater).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system and interface of APA by providing programmable control logic for controlling the operating modes of the bus repeater and controlling the direction of data through the interface, as shown by Lui, thereby enabling the bus repeater and control logic to properly cooperate through common interfaces to the main bus and extended bus.

- Regarding Claims 14 and 15,

APA discloses a communication system and interface that meets all limitations of the parent claims.

APA discloses an example of the system as an aircraft communication system in which the plurality of remote terminals 10 coupled to the extended bus are associated with weapons on the aircraft (see also Background section of the

Specification, Pg. 1, paragraph 2; meets claim 14 – system is an aircraft communication system; claim 15 – a plurality of remote device terminals in communication with the extended bus; claim 15 – each remote device terminal associated with an aircraft weapon).

8. Claims 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lui in view of Alexander, III et al. (US006701402B1), hereafter Alexander.

- Regarding Claims 7 and 13,

Lui discloses a communication system and interface that meets all limitations of the parent claims.

Lui does not explicitly discloses bus idle detection circuitry in the bus repeater.

Alexander discloses selectively operating a host's device controller in a first or second mode (Title). Alexander discloses logic circuitry for detecting when the bus is idle (Col. 1, lines 55-65; meets claim 7,13 - bus idle detection circuit in the bus repeater).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Lui by implementing bus idle detection circuitry, as shown by Alexander, in the bus repeater, in order to provide the bus repeater and control logic of the integrated adapter with an indication of data to be processed over the bus from the host or remote devices.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Morrow (US 20020078289A1)
- Regula (US006851009B1)
- Bird (US 4,837,788)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B. Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Sefcheck
Patent Examiner
8-30-2007